



Oregon

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September 24, 2009

Also Sent Via E-mail

Mr. Robert J. Wyatt
Northwest Natural Gas Company
220 N.W. Second Avenue
Portland, OR 97209

**Re: Interim Design Report
Shoreline Segments 1 and 2, NW Natural Property and the Northern Portion of the
Siltronic Corporation Property
Portland, Oregon
ECSI No. 84**

Dear Mr. Wyatt:

The purpose of this letter is to provide NW Natural with the Oregon Department of Environmental Quality (DEQ) comments and direction regarding the content and schedule for the Interim Design Report for source control measures (SCMs) being planned along the shoreline of property owned by NW Natural (NW Natural, or "Gasco" Site) and the northern portion of property owned by the Siltronic Corporation (Siltronic).

BACKGROUND

DEQ determined the shoreline of the NW Natural Property and the northern portion of the Siltronic-owned property are high priorities for source control. The portion of the shoreline identified as the highest priority for source control (Segment 1) extends from downstream of the "Tar Body Removal Area"¹ (TBRA) on the NW Natural Property, to upstream of the former Gasco manufactured gas plant (MGP) effluent overflow ponds on the Siltronic-owned property (Siltronic Property). This segment coincides with the heaviest MGP-related impacts identified near the river, including dense non-aqueous phase liquids (DNAPLs), contaminated groundwater, and impacted riverbank soils. It also includes the portion of the Siltronic Property where groundwater contamination caused by Siltronic has commingled with DNAPL and groundwater contamination resulting from former Gasco MGP operations.

The segment of NW Natural's shoreline between the TBRA and NW Natural's downstream property line with US Moorings (Segment 2) is considered a high priority for source control, primarily due to the presence and concentrations of MGP chemicals of interest (COI), particularly cyanide, in riverbank soils and groundwater. A third shoreline segment (Segment 3) extends from upstream of the former effluent ponds to the upstream Siltronic Property line. A source control evaluation of Segment 3 is ongoing.

¹ The "Tar Body Removal Area" and former effluent ponds are features associated with the historic operation of the former Gasco MGP. The TBRA was subject to an EPA early action conducted in the late-summer/early-fall 2005.

SOURCE CONTROL MEASURES PLANNING AND DESIGN

NW Natural completed the Groundwater/DNAPL Focused Feasibility Study (FFS) for Segment 1 and Segment 2 in November 2007². The Groundwater/DNAPL FFS presents the remedial action objectives (RAOs) for source control, which were jointly developed by NW Natural and DEQ and include: 1) control of upland groundwater gradients resulting in near zero groundwater discharge to the Willamette River; and 2) preventing DNAPL in the uplands from migrating to the river. The Groundwater/DNAPL FFS also presents NW Natural's evaluation of source control measures (SCMs) alternatives and recommended SCMs to achieve RAOs. NW Natural's recommendation combines a hydraulic control/containment (HC&C) system along shoreline segments 1 and 2 with a vertical barrier along the northern portion Segment 1 (i.e, the southern portion of the NW Natural Property). DEQ approved NW Natural's recommendation subject to conditions and comments detailed in a March 21, 2008 letter (March 21st Letter).

Subsequent to completion of the Groundwater/DNAPL FFS, NW Natural and DEQ participated in a series of meetings to work through the more substantive issues identified in the March 21st Letter and establish the SCMs planning and design process, including identifying and agreeing on "preliminary," "interim," and "final" design steps. The Preliminary Design Report³ prepared by NW Natural summarizes the status of SCMs planning and design based on the outcomes of the meetings. In addition, the document summarizes agreements reached by NW Natural and DEQ regarding SCMs design, aspects of SCMs design requiring further study, and the preliminary design for the principal source control elements. The Preliminary Design Report also provides a projected schedule for completing design support studies and interim and final design documents. DEQ provided comments to the Preliminary Design Report in a letter dated August 22, 2008 (August 22nd Letter). The August 22nd Letter clarified DEQ's understanding of the agreements reached during planning meetings and our position on certain aspects of the SCMs planning and design process (riverbank source control, sequencing SCMs) and design support studies, (e.g., DNAPL movement and mobility evaluation, DNAPL removal pilot testing). DEQ's expectations regarding the content of the next SCMs planning and design document (the "Interim Design Report") are also communicated in the August 22nd Letter.

The Interim Design Report is intended to be the first design document to incorporate the findings and results of SCMs design support studies. Based on the outcome of planning meetings and design support studies, DEQ understood the Interim Design Report was going to provide the interim design for a combination of SCMs, including a:

- Vertical barrier constructed using either sheet-pile or slurry wall methods with dimensions of approximately 625 feet long by 90 feet deep, extending from just north of the Siltronic property line to just downstream of the TBRA.
- HC&C system consisting of a series of "intermediate" depth extraction wells evenly spaced along segments 1 and 2, and "shallow" extraction wells located behind the vertical barrier.

² Anchor QEA, LLC, 2007, "Groundwater/DNAPL Source Control Focused Feasibility Study – NW Natural 'Gasco' Site," October 12 (amended November 9th), and report prepared for NW Natural.

³ Anchor QEA, LLC, 2008, "Preliminary Design Report – Groundwater Source Control, NW Natural Gasco Site," June, a report prepared for NW Natural.

- Water treatment system sized to treat 400 gallons per minute.

The Interim Design Report was also to include a sequencing plan to integrate SCMs implementation, a performance monitoring program to assess the effectiveness of SCMs through monitoring groundwater levels and chemistry along segments 1 and 2, and a general approach and timeframe for implementing upland DNAPL removal in the area of the former effluent ponds.

The Interim Design Report was due to DEQ on July 31, 2009. In a meeting on July 20th, DEQ was informed of NW Natural's decision to postpone submittal of the Interim Design Report in order to complete the water treatment system pilot study and re-evaluate the overall design. NW Natural followed up the July 20th meeting with a memorandum dated July 31st (July 31st Memorandum)⁴. The July 31st Memorandum requested the established SCMs design process be modified so the Interim Design Report could incorporate the results of the water treatment system pilot, and design of the HC&C SCM could proceed while other elements of source control (e.g., the vertical barrier) could be re-evaluated.

NW Natural and DEQ have met on two occasions to further discuss the July 31st Memorandum. The first meeting provided an opportunity for NW Natural to explain the "Key Issues" identified in the memorandum. The second meeting offered NW Natural an opportunity to provide the technical basis for re-evaluating the vertical barrier design and schedule.

INTERIM DESIGN REPORT CONTENT AND SCHEDULE

The Groundwater/DNAPL FFS determined that of the SCM alternatives carried forward into the detailed evaluation, the vertical barrier and HC&C combination scored highest overall. Notably the combination scored higher than HC&C alone in four of the five "Effectiveness" sub-categories, primarily because the vertical barrier physically blocks DNAPL migrating to the river. Based on the July 20th, August 26th, and September 15th meetings; DEQ continues to consider the recommendations made by NW Natural in the Groundwater/DNAPL FFS to be valid, that is the combination of the vertical barrier and HC&C system is a technically sound approach to achieve source control RAOs. Furthermore, DEQ determines NW Natural has not provided a technical basis for modifying the established SCMs planning and design process. Based on this information, DEQ directs NW Natural to:

- Incorporate the results of the water treatment system pilot study into the Interim Design Report;
- Complete the Interim Design Report, the contents of which should include:
 - an interim design and sequencing plan for a vertical barrier, and HC&C system and water treatment system;
 - a SCMs performance monitoring program; and
 - general descriptions of the approaches and timeframes for conducting uplands DNAPL removal.
- Submit the Interim Design Report on or before November 7, 2009.

⁴ Anchor QEA, LLC, 2009, "Key Issues Identified by NW Natural at July 20, 2009 Meeting with DEQ on Gasco Source Control Interim Design" July 31, a memorandum prepared for NW Natural.

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Consistent with the August 22nd Letter and September 15th meeting discussions, the Interim Design Report will be reviewed by DEQ, EPA, and other Portland Harbor stakeholders. DEQ will prepare a letter providing review comments and selecting the final SCMs alternatives. Unless review of the document identifies additional work is needed to complete SCMs design, DEQ's letter will also approve key SCMs design parameters (e.g., vertical barrier alignment and dimensions; numbers, locations, and depths of extraction wells). Subsequent to receiving DEQ's comments letter, NW Natural will revise and resubmit the Interim Design Report, which will then be made available for public review and comment.

NW Natural is advised that if the Interim Design Report is not received by November 7th incorporating DEQ's comments and direction, DEQ intends to proceed with assessment of stipulated penalties in accordance with Section II.S of the Voluntary Agreement.

Please don't hesitate to contact me if you have questions regarding this letter.

Sincerely,

Dana Bayuk
Project Manager
Portland Harbor Section

Cc: Patty Dost, Pearl Legal Group
John Edwards, Anchor QEA
Carl Stivers, Anchor QEA
Rob Ede, Hahn & Associates
Tom McCue, Siltronic
Alan Gladstone and Bill Earle, Davis Rothwell Earle & Xochihua, P.C
James Peale, Maul Foster & Alongi, Inc.
Eric Blischke, EPA
Chip Humphrey, EPA
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Tom Gainer, DEQ/PHS
Matt McClincy, DEQ/PHS
Henning Larsen, DEQ/SRS
ECSI No. 83 File
ECSI No. 184 File